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(2013.01)(73) Assignee: **Nokia Technologies Oy**, Espoo (FI)(57) **ABSTRACT**(21) Appl. No.: **14/907,665**(22) PCT Filed: **Jul. 30, 2013**(86) PCT No.: **PCT/IB2013/056258**

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Apparatuses and methods for producing and/or receiving an optical beam are disclosed. A phased array on a chip comprises phase shifters and off-chip couplers to provide phase controlled pixels. An optical system is arranged in front of the phased array. The optical system is configured to concentrate light from the phased array and/or expand a received beam of light for input into the phased array.

